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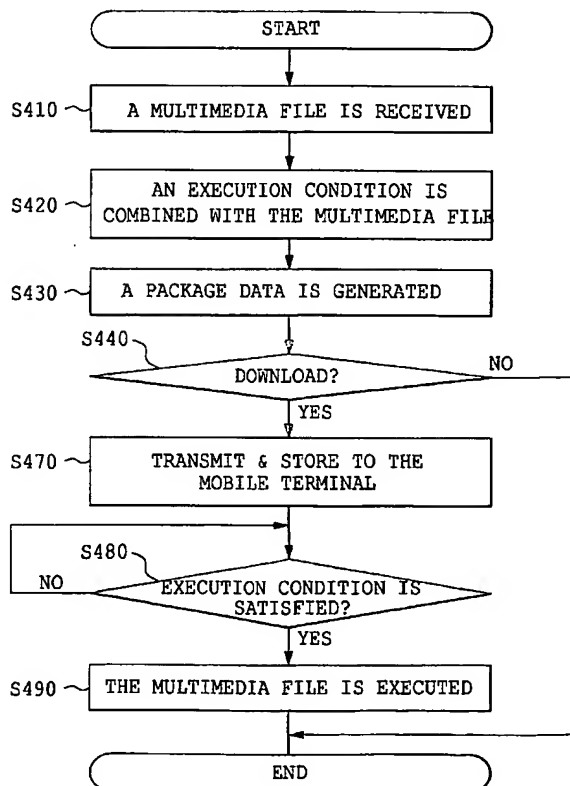
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(54) Title: A METHOD AND AN APPARATUS FOR PROVIDING MULTIMEDIA SERVICES IN MOBILE TERMINAL



(57) Abstract: A method and an apparatus provide a service of multimedia data in a mobile terminal. In the method and the apparatus, a package data is generated and stored at a multimedia data providing device. The package data includes an execution condition and a multimedia file corresponding to the execution condition, wherein the multimedia file executes in the mobile terminal when the execution condition is satisfied. When the mobile terminal accesses the multimedia data providing device and requests the multimedia data, the package data including the multimedia data is transmitted to the mobile terminal through communication network. According to the method and the apparatus, the mobile terminal is simply provided various multimedia services.

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**A METHOD AND AN APPARTUS FOR PROVIDING MULTIMEDIA SERVICES  
IN MOBILE TERMINAL**

**TECHNICAL FIELD**

The present invention relates to a method and an apparatus for providing multimedia services. More specifically, the present invention relates to a method and an apparatus for providing multimedia services such as video and audio, etc. when a user uses a mobile terminal in a mobile communication system.

**BACKGROUND ART**

Lately, the functions of wireless Internet and multimedia services in the mobile terminal have been improved. Accordingly, the size of the display panel has become bigger so that the mobile terminal can display the higher quality of video. Moreover, mobile terminals which have a function of camera are released to the market.

As the display panel of the mobile terminal becoming

bigger and its function is becoming improved, numerous plans for satisfying the users wanting to embody their unique individual characters by using the display panel of the mobile terminal.

5           As one plan of the above, the function of displaying still images or moving images, which are directly photographed by the user using a camera mounted on the mobile terminal, or still images or moving images, which are downloaded from a web server providing the service of downloading background  
10 screens, in the display panel of the mobile terminal as a background screen, is widely used.

          Currently, as the kinds of background screen capable of displaying video in the mobile terminal, there are a starting screen when supplying power with the mobile terminal, a standby  
15 screen at normal times, a receiving screen when receiving a phone call, a sending screen when calling a phone call, a connecting screen when connecting to the internet and an ending screen when ending the mobile terminal.

          The user of the mobile terminal stores the still images  
20 or moving images, which are directly photographed by using the camera mounted on the mobile terminal, or downloads the still images or moving images from a web server providing the service of downloading background screens, and then sets

and stores one still image or moving image in the above background screens.

Then, the starting screen is displayed when turning on the mobile terminal, the ending screen is displayed when turning off the mobile terminal, and the standby screen at normal times. Also, when receiving a phone call, a receiving screen is displayed in the display panel of the mobile terminal. Further, when inputting a phone number and selecting a button for calling, a sending screen is displayed in the display panel of the mobile terminal, and when selecting a button for connecting the internet, an internet-connecting screen is displayed in the display panel of the mobile terminal.

However, conventionally, the user had to perform several repetitive operations to set the still image or moving image which corresponds to each event of showing the background screen in the mobile terminal. Therefore, it was inconvenient to perform the same setting operations for each number of background screen.

In addition, the user of the mobile terminal looks at the display panel of the mobile terminal when inputting the phone number to call the other party more than the background screen.

Nevertheless, the conventional panel of the mobile

terminal was set to display only the phone number inputted by the number button of keypad in a phone number inputting screen, that is, the numbers while leaving the remaining space blank, or was set to display the number in the same screen.

5           In addition, the conventional mobile terminal provides still images or moving images, namely, video data, which were previously set, as the plurality of background screens. Moreover, if the user selects a button of keypad of the mobile terminal, a service of making audios previously set by the  
10       user is provided as the user had set.

          At this time, it is impossible to download the service of providing the background screen and audio simultaneously allocated to the number. That is, it has caused inconveniences of downloading the video data and audio data separately and  
15       storing them in a predetermined memory of the mobile terminal.

          Therefore, it is highly necessary to provide a service of storing the video data and audio data as one multimedia file so that the multimedia file can be transmitted to the mobile terminal. And it is also necessary to provide  
20       simultaneously video data, audio data and text data included in the transmitted multimedia file.

DISCLOSURE OF INVENTION

The present invention is conceived considering the above-mentioned circumstances. The object of the present invention is when a user uses a mobile terminal, to provide a method for providing multimedia services to the mobile terminal which offers multimedia data allocated to each event to the user while the user pushes a key button and an apparatus for providing the same.

The additional object of the present invention is to provide a method for providing multimedia data which displays various background screens while the user selects number keys or special keys of the mobile terminal and an apparatus for providing the same.

In addition, another object of the present invention is to provide a method for providing multimedia data which transforms and transmits data including multimedia file transmitted to the mobile terminal as one package data and which executes at least two data among video data, audio data and text data, and an apparatus for providing the same.

The method for providing multimedia services according to the first point of view of the present invention for achieving the above objects comprises the steps of:

(a) generating and storing a package data including an execution condition to be executed in a mobile terminal and a predetermined multimedia file according to the execution condition; and

5 (b) downloading the package data according to the condition, which is previously set, to the mobile terminal through the communication network and storing the package data in a memory part of a mobile terminal.

Preferably, the method further comprises the step of:

10 (c) executing the multimedia file according to the execution condition when the execution condition is satisfied in the mobile terminal which receives the package data.

More preferably, the method is characterized by that the execution condition is satisfied by a key signal, which  
15 is generated from a key pad of the mobile terminal, being inputted into the mobile terminal.

At this time, the key signal is one of the following signal:

a starting key signal for supplying power to the mobile  
20 terminal, a call receiving key signal for connecting a call when a call is requested to the mobile terminal, a call sending key signal used when a call is requested a call by using the mobile terminal, an ending key signal for ending the mobile



terminal, and an internet connecting key signal used when a wireless communication network is connected by using the mobile terminal.

The method is characterized by that the execution condition is satisfied by the number key signal or the special key signal of the mobile terminal being inputted, and that the execution condition is satisfied by a conversion signal to a standby mode being inputted after the starting key signal is inputted.

More preferably, the step (a) of generating and storing the package data comprises the steps of:

a-1) setting at least one execution condition to be executed in the mobile terminal;

a-2) selecting a predetermined multimedia file according to the set execution condition;

a-3) generating and storing the execution condition and the multimedia file according to the execution condition as one file.

At this time, the package data can be stored as a compressed file depending on the purpose of the company providing the services in order to reduce the transmission capacity in the communication network, and can be provided as a simple merged file in order to generate the package data

quickly in the package generating server.

Also, if the user receives a download requesting message of the multimedia file from the mobile terminal or if a certain time has passed for downloading the multimedia file to the mobile terminal, the package data is transmitted to the mobile terminal. The multimedia file includes video data and audio data.

The method for providing multimedia services in a mobile terminal according to the second point of view of the present invention for achieving the object comprises the steps of:

(i) setting at least one execution condition to be executed in the mobile terminal;

(ii) selecting a predetermined multimedia file according to the set execution condition;

(iii) generating and storing a package data including the execution condition and the multimedia file according to the execution condition;

(iv) downloading the package data according to the set condition to the mobile terminal and storing it in a memory part; and

(v) executing the multimedia file according to the execution condition if the execution condition is satisfied in the mobile terminal which receives the package data.

Preferably, the multimedia data is characterized by including video data, audio data and text data, and the package data is characterized by being able to be stored as a compressed file in order to reduce the transmission capacity in the communication network or a simple merged data depending on the purpose of company providing the services.

More preferably, the execution condition is satisfied if one of the following signals are inputted:

the starting key signal for supplying power with the mobile terminal;

the call receiving key signal for connecting a call when a call is requested to the mobile terminal;

the call sending key signal when requesting a call by using the mobile terminal;

the ending key signal for ending the mobile terminal; and

an internet connecting key signal when connecting the wireless communication network by using the mobile terminal is inputted.

The execution condition is satisfied by the number key signal or special key signal of the mobile terminal is

selectively inputted in the mobile terminal.

The apparatus for providing multimedia services in a mobile terminal according to the third point of view of the present invention for achieving the object comprises:

5           a package data generating part for generating a package data including an execution condition to execute a multimedia file and a predetermined multimedia file according to the execution condition; and

10           A package data managing part for storing the package data generated from the package data generating part and for transmitting the package data to the mobile terminal according to a predetermined condition.

Preferably, the package data generating part comprises:

15           a database managing module for storing the multimedia file transmitted from a server of a multimedia file provider by each predetermined classified item; and

20           a package data generating module for combining at least one multimedia file with one execution condition and combining each multimedia file stored correspondingly to a plurality of execution conditions to generate a package data.

Also, the package data managing part comprises:

          a user information managing module for managing information of a plurality of the mobile terminals provided

with the multimedia services;

a storing module for storing the package data generated from the package data generating part; and

a transmitting module for transmitting the package data to the mobile terminal if the mobile terminal requests the package data to be downloaded or if the latest downloading information passes a certain time when searching the downloading information.

By the above, the present invention can embody various multimedia services in the mobile terminal.

#### BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 is a view for showing a system for providing multimedia services comprising an apparatus for providing multimedia services in a mobile terminal according to one embodiment of the present invention.

Fig. 2 is a schematical view of an interior diagram of the mobile terminal applied by one embodiment of the present invention.

Fig. 2 is a flow chart for schematically explaining the method for providing the multimedia services according to one embodiment of the present invention.

Fig. 4 is a flow chart for explaining the method for providing the multimedia services according to one embodiment of the present invention in detail.

Fig. 5 is a view for showing a format according to one embodiment of the present invention.

#### DETAILED DESCRIPTION

Hereinafter, preferable embodiments of the present invention are explained in detail by referring to the drawings attached hereto.

Fig. 1 is a view for showing a system for providing multimedia services comprising an apparatus for providing multimedia services in a mobile terminal according to one embodiment of the present invention.

As shown in Fig. 1, the system for providing multimedia services comprises a mobile terminal (200), a communication network (120) including a mobile communication system, a server of a multimedia file provider (130) and an apparatus for providing multimedia contents (100).

The mobile communication system comprises a base station, a switching system, home location register and SMS (Short

Message Service) center, which are not illustrated herein. The base station comprises a base transceiver station (BTS) and a base station controller (BSC).

5 The mobile terminal (200) communicates with the apparatus for providing multimedia contents (100) by using a broadband protocol such as a cellular phone through the communication network (120).

10 The apparatus for providing multimedia contents (100) comprises a package data generating part (150) and a package data managing part (170). In one application, the package data generating part (150) and the package data managing part (170) are connected through a wireless and wireline communication network. However, in another application, they are connected by a private line. Preferably, they are  
15 arranged in one apparatus (see Fig. 1).

The package data generating part (150) generates a package data to be received by the mobile terminal (200). The package data includes a multimedia file and an execution condition to execute the multimedia file in the mobile terminal  
20 (200). The package data generating part (150) having the above function includes a multimedia file receiving module (151), a database managing module (153) and a package data generating module (155).

The multimedia file receiving module (151) receives the multimedia files provided periodically or aperiodically from the server of the multimedia file provider (130) and stores them.

5           The database managing module (153) stores the multimedia files provided from the server of the multimedia file provider (130) by each predetermined classified item.

          The package data generating module (155) combines one execution condition with at least one multimedia file. One  
10   package data is generated by combining a plurality execution conditions combined by the above method with each of the multimedia files respectively combined with the plurality of execution conditions together.

          The package data generating part (150) can be operated  
15   by a company providing mobile communication service or can be operated by a multimedia file provider.

          The package data managing part (170) stores the package data generated from the package data generating part (150) and transmits the package data to the mobile terminal (200) according to a predetermined condition. The package data  
20   managing part (170) comprises a transmitting module (171), a storing module (173) and a user information managing module (175).



The user information managing module (175) manages the information of subscribers which applied for the provision of the multimedia services, and comprises hardwares such as CPU, etc. which processes the multimedia data requested by the user.

The storing module (173) comprises a hard disc drive, etc. which stores the transmitted package data from the package data generating part (150).

The transmitting module (171) transmits the package data to the mobile terminal (200) through the communication network (120). At this time, the transmitting module (171) transmits the package data to the mobile terminal (200) if a message requesting the package data to be downloaded is received from the mobile terminal (200).

Fig. 2 is a view for showing a schematical interior block diagram of the mobile terminal applied in one embodiment of the present invention.

The mobile terminal (200) includes not only a cellular phone, but also a PDA and a notebook computer. The present invention describes a mobile terminal as one embodiment, but this invention can be applied to a wireline as well as a wireless terminal which can connect to the wireline or wireless internet through the communication network (120).

The mobile terminal (200) comprises data and audio signal transmitting part (210), a microphone (220), a speaker (230), a controlling part (240), a key pad (250), a display apparatus (260) and a memory (270).

5           The controlling part (240) controls and manages the interior apparatuses of the mobile terminal based on softwares such as an operation program, data required for the operation and an application program, etc.

10           The memory (270) stores the downloaded package data, etc.

          The keypad (250) is an input means for inputting numbers, letters and special functions to the controlling part (240) of the mobile terminal (200).

15           The display apparatus (260) displays not only the key signals inputted by the keypad (250) but also the multimedia file in the package data stored in the memory (270) such as still images and moving images.

          The speaker (230) outputs received voice signals and audio data in the package data.

20           The mobile terminal having the above constitutions performs different video data, audio data and text data, namely, multimedia files according to the inputting of a key signal or a predetermined condition generated by selecting a button

of the key pad (250).

The method for providing a multimedia data according to the above constitutions is explained more in detail as follows.

5 Fig. 3 is a flow chart for schematically explaining the method for providing multimedia services according to the one embodiment of the present invention.

Upon reviewing the method for providing the multimedia services of the present invention schematically, first of  
10 all, a package data is generated from at least one data among video data, audio data and text data provided from a multimedia file provider server (130) (S310).

Otherwise, companies providing multimedia data can generate video data, audio data and text data as a package  
15 data and then can upload it to an apparatus for providing multimedia contents (100) by using PC, etc.

If the generated package data satisfies a certain condition, the package data is transmitted to the mobile terminal (200) (S320).

20 The transmitted package data is stored in the memory (270) of the mobile terminal (200), and if certain conditions, such as inputting of the key signal of the mobile terminal (200), are satisfied, the multimedia file included in the

package data is executed and the video data and text data are provided to a displaying part (260), and the audio data is provided to a speaker (230).

Fig. 4 is a flow chart for explaining the method for providing multimedia services according to the one embodiment of the present invention.

A contents providing apparatus (100) receives a multimedia file from the multimedia file provider server (130) (S410).

The received multimedia file is stored in a file receiving module (151) of the package data generating part (150). The multimedia file is stored in the database by item and is managed in the database managing module (153)

The execution condition to be executed in the mobile terminal is combined with at least more than one multimedia file, which is executed if the execution condition is satisfied (S420).

The execution condition is at least one, and if the execution conditions are numerous, the plurality of the execution conditions and the multimedia files corresponding to each of the plurality of the execution conditions are gathered and are generated as one package data (S430).

As one example, the execution conditions to be executed

by the multimedia file in the mobile terminal (200) are set by inputting of the key signals generated from the key pad of the mobile terminal (200) and by the standby status of the mobile terminal (200), etc.

5           The key signals include a starting key signal for supplying power with the mobile terminal (200), a call receiving key signal for connecting a call when a call is requested to the mobile terminal (200), a call sending key signal for requesting a call by using the mobile terminal  
10           (200), an ending key signal for ending the mobile terminal (200) and an internet connecting key signal for connecting the wireless communication network by using the mobile terminal (200).

          The key signals comprise number keys (0-9) and special  
15           keys (\*, #), etc.

          In addition, a package data generator selects at least one execution condition of the above execution conditions, and selects the multimedia file according to the selected execution condition.

20           For example, at the step (S420), a multimedia file including moving images or still images of 'The 12 Oriental Zodiac Animals' is designated to the number keys and special keys (\* and #). More specifically, a multimedia file including

audio data "zero" and a moving image of a mouse character are designated to the number key "0", and a multimedia file including audio data "star" and a moving image of a dog character are designated to the special key "\*."

5           If the mobile terminal (200) connects to the multimedia contents providing apparatus (100) through the communication network (120) and requests the downloading of the multimedia data, the multimedia contents providing data (100) transmits the package data stored in the storing module (173) to the  
10           mobile terminal (200) (S440 and S470).

          The package data transmitted to the mobile terminal is stored in the memory (270) of the mobile terminal (200).

          If the execution condition is satisfied in the mobile terminal (200), the package data stored in the memory (270)  
15           is loaded and the multimedia file according to the execution condition included in the package data is executed (S480 and S490).

          For example, if the user selects a number key "0" in the above examples, that is, the execution condition of inputting  
20           a key signal is satisfied, the mouse character, which is set in the number key "0", appears on the displaying part (260) as a moving image or still image and outputs the audio data "0" through the speaker (230).

Fig. 5 is a format of a package data according to one example of the present invention.

One package data (400) comprises of a header part (410) including information of the package data, video data (420) and audio data (440) and text data (430).

The header part (410) can define the individual execution condition to be allocated to the data in the package data. A Service provider can determine the execution condition to be allocated by the present method for providing multimedia services and the apparatus for providing the same. The execution conditions are set as various circumstances such as pushing the number keys of 0-9, the special keys including "\*" (a star key) and "#" (a sharp key), the power on/off keys, the call sending key, the call receiving key, the wireless internet connecting key and standby status, etc.

The video data (420) region comprises information (421) of a relevant data allocated to a certain execution condition, information of the kind of the relevant data such as still image format (e.g. JPG, GIF and BMP, etc.) or animation format (e.g. Animation GIF and SIS) or moving image format (e.g. MPEG4, AVI) (422) and the substantial video data region (423).

At this time, a video data set can be defined according to the execution conditions to be allocated and the allocating

method. For example, in case of selecting number keys for the same video data, one video data is sufficient to provide the service of the present invention. In case of providing different multimedia files with the respective number keys and special keys, at least 12 data are required, as shown in Fig. 4.

The text data (430) region comprises information (431) of the relevant data allocated to a certain execution condition and action information (432) such as font, size and left and right scrolls of the text and the text-self data (433).

As a result, when the video data or text data is outputted to the displaying part (260), the displaying position of the data, such as upper portion and central portion, etc., can be set. In addition, the effect of left and right scroll, and up and down scroll can be set. For the text data, various effects such as font, size, color and thickness of letters can be provided.

The audio data (440) region comprises information (441) of the relevant data allocated to a certain execution condition, information of the kind of the audio format of the relevant data (e.g., wav and mp3) and a substantial audio data (423) region.

Moreover, since the audio data can provide various



effects such as control of sound volume, the present invention can have an effect of providing a distinctive service.

Thus, once the downloaded package data is stored in a mobile terminal, it can execute multimedia files through a display part and speaker of the mobile terminal without a particular execution condition set in the background screen, number keys and special keys of the mobile terminal, if a predetermined execution condition is satisfied. This is a distinctive service from the conventional service which provides simple pictures or effect sounds.

In addition, at the time of producing a package data, the multimedia service provider can gather a plurality of multimedia files having similar characters as one package, and the user of the mobile terminal can access the multimedia services having consistency by downloading the relevant package data and by using it.

**THE CLAIMS**

1. A method for providing multimedia services in a  
5 mobile terminal comprising the steps of:

(a) generating and storing a package data including an  
execution condition to be executed in the mobile terminal  
and a predetermined multimedia file according to the execution  
condition; and

10 (b) downloading the package data according to a  
previously set condition to the mobile terminal through a  
communication network.

2. The method as claimed in claim 1, further comprising  
15 the step of :

(c) a step of executing the multimedia file according  
to the execution condition when the execution condition in  
the mobile terminal receiving the package data is satisfied.

20 3. The method as claimed in claim 1 or 2, wherein the  
execution condition is satisfied by a key signal generated  
from a key pad of the mobile terminal being inputted to the  
mobile terminal.

4. The method as claimed in claim 3, wherein the key signal is one of the following signals:

a starting key signal for supplying power to the mobile terminal,  
5 a call receiving key signal for connecting a call when a call is requested to the mobile terminal, a call sending key signal used when a call is requested by using the mobile terminal, an ending key signal for ending the mobile terminal and an internet connecting key signal used when a wireless  
10 communication network is connected by using the mobile terminal.

5. The method as claimed in claim 3, wherein the execution condition is satisfied by a number key signal of the mobile  
15 terminal being inputted to the mobile terminal.

6. The method as claimed in claim 5, wherein the execution condition is satisfied by a special key signal of the mobile terminal being inputted to the mobile terminal.

20 7. The method as claimed in claim 1, wherein the step of a) generating and storing the package data comprises the steps of:

a-1) setting at least one execution condition to be executed in the mobile terminal;

a-2) selecting a predetermined multimedia file according to the set execution condition; and

5 a-3) generating and storing the execution condition and the multimedia file according to the execution condition as one file.

8. The method as claimed in claim 1 or 7, wherein the  
10 package data is stored as a compressed file in order to reduce the transmission capacity.

9. The method as claimed in claim 1 or 7, wherein the  
package data is stored as a simple merged file in order to  
15 generate the package data quickly in the package generating server.

10. The method as claimed in claim 1, wherein the  
predetermined condition is to receive a download requesting  
20 message of the multimedia file from the mobile terminal.

11. The method as claimed in claim 1, wherein the  
multimedia file comprises video data and audio data.

12. A method for providing multimedia services in a mobile terminal, comprising the steps of:

(i) setting at least one execution condition  
5 to be executed in the mobile terminal;

(ii) selecting a predetermined multimedia file according to the set execution condition;

(iii) generating and storing a package data including the execution condition and the multimedia file according  
10 to the execution condition;

(iv) downloading the package data according to the set condition to the mobile terminal through the communication network and storing the package data in the memory part of the mobile terminal; and

15 (v) executing the multimedia file according to the execution condition if the execution condition is satisfied in the mobile terminal receiving the package data.

13. The method as claimed in claim 12, wherein the  
20 multimedia data includes at least one data among video data, audio data and text data.

14. The method as claimed in claim 13, wherein the package

data is stored as a compressed file in order to reduce the transmission capacity in the communication network.

15. The method as claimed in claim 13, wherein the package  
5 data is stored as a simple merged file in order to generate the package data quickly in the package generating server.

16. The method as claimed in claim 12, wherein the  
execution condition is satisfied by inputting to the mobile  
10 terminal one of the following signals:

a starting key for supplying power with the mobile  
terminal, a call receiving key signal for connecting a call  
when a call is requested to the mobile terminal, a call sending  
key signal when requesting a call by using the mobile terminal,  
15 an ending key signal for ending the mobile terminal, and an  
internet connecting key signal when connecting the wireless  
communication network by using the mobile terminal.

17. The method as claimed in claim 12, wherein the  
20 execution condition is satisfied by number key signals or  
special key signals being inputted in the alternative.

18. An apparatus for providing multimedia services in

a mobile terminal comprising:

a package data generating part for generating a package data including an execution condition to execute a multimedia file in a mobile terminal and a predetermined multimedia file according to the execution condition; and

a package data managing part for storing the package data generated from the package data generating part and for transmitting the package data to the mobile terminal according to a predetermined condition.

19. The apparatus as claimed in claim 18, wherein the package data generating part comprises:

a database managing module for storing the multimedia file transmitted from the multimedia file provider server by predetermined classified item; and

apackage datageneratingmodule for generating a package data by combining one execution condition with at least one multimedia file and by combining each of the multimedia files stored correspondingly to a plurality of execution conditions with the plurality of execution.

20. The apparatus as claimed in claim 18, wherein the package data managing part comprises:

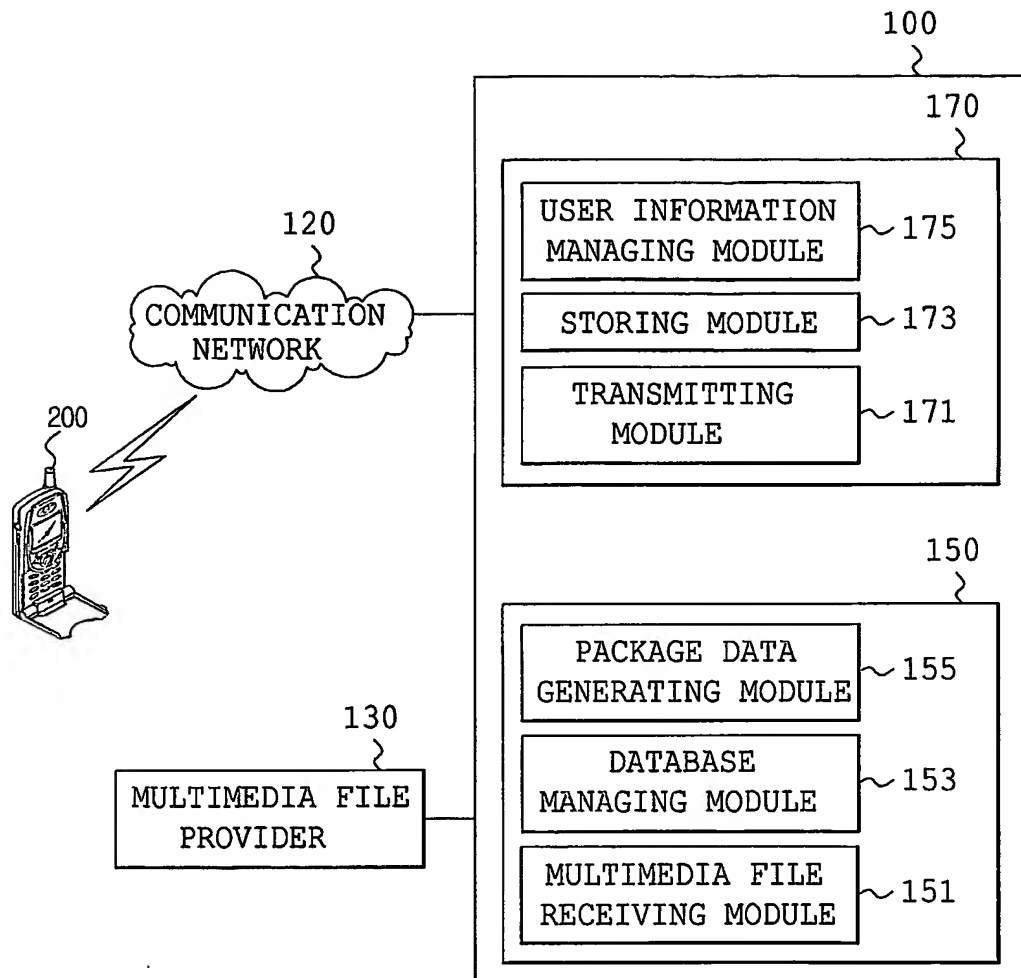
a user information managing module for managing a plurality of mobile terminals provided with the multimedia services;

a storing module for storing a package data generated from the package data generating part; and

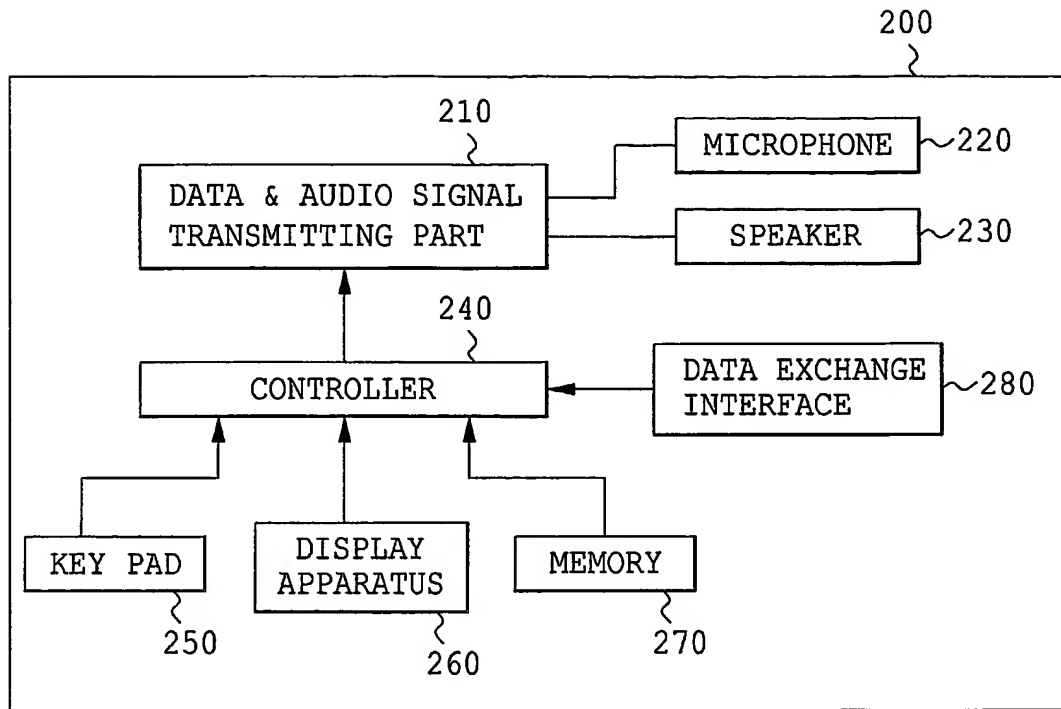
a transmitting module for transmitting the package data to the mobile terminal if the mobile terminal requests the package data to be downloaded or if the latest downloading information passes a certain time when searching the downloading information.



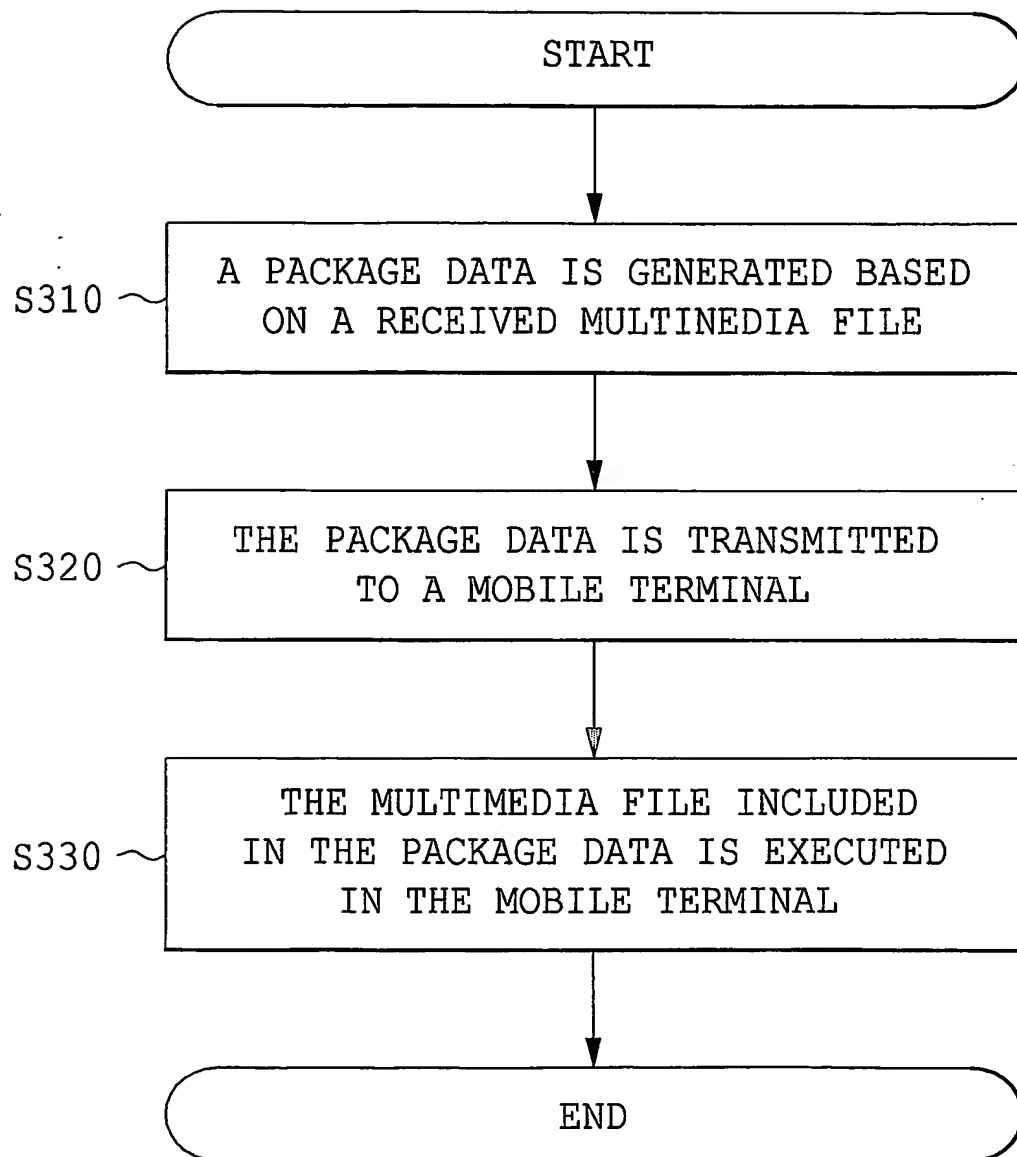
1/5  
FIG. 1



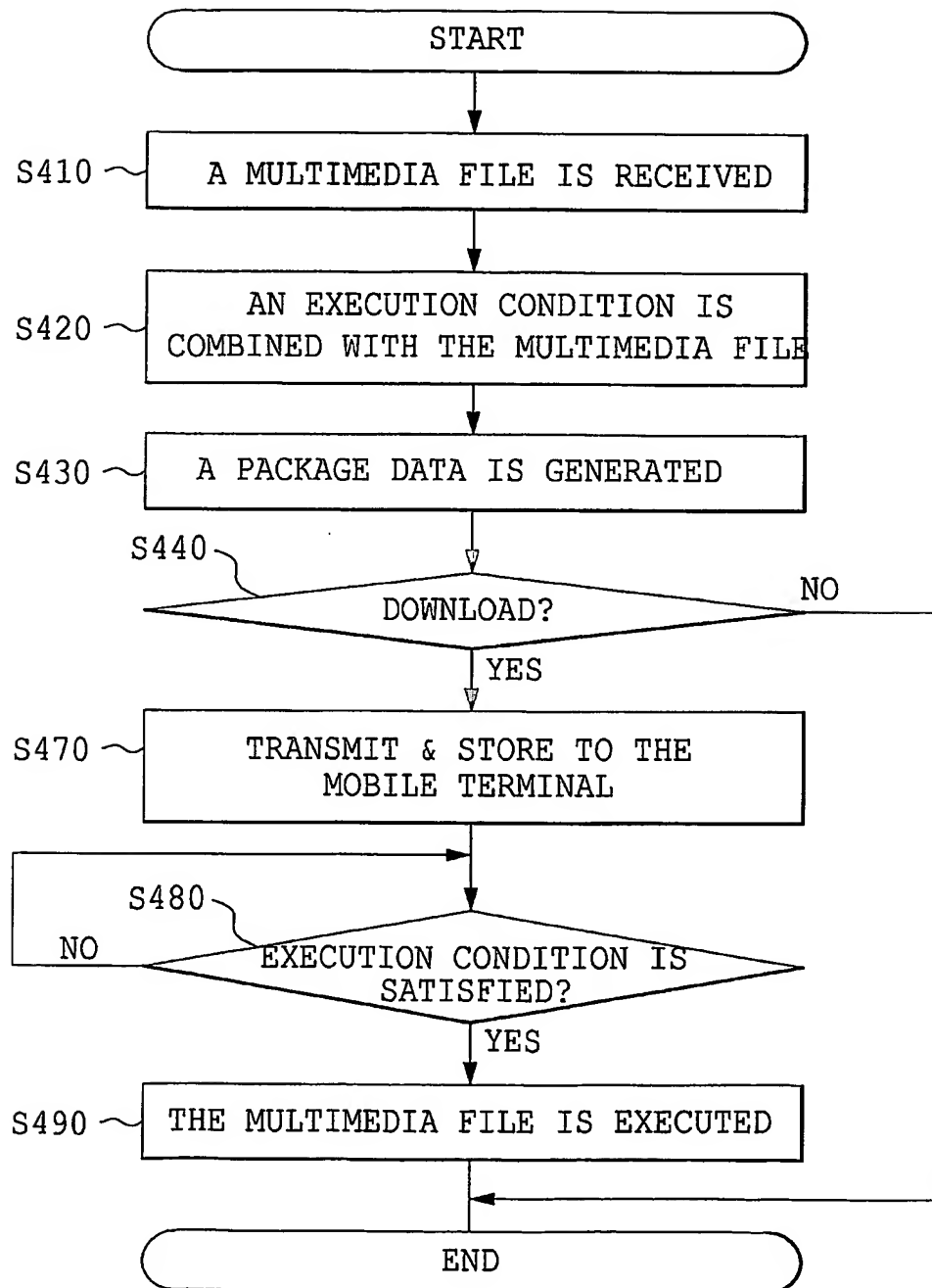
2/5  
FIG. 2



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FIG. 3



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FIG. 4



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FIG. 5

410	BASIC INFORMATION OF PACKAGE DATA			430
420	VIDEO 01	HEADER INFO	VIDEO DATA	
	421	422 ...	423	
	VIDEO 12	HEADER INFO	VIDEO DATA	
430	TEXT 01	HEADER INFO	TEXT DATA	
	431	432 ...	433	
	TEXT 12	HEADER INFO	TEXT DATA	
440	AUDIO 01	HEADER INFO	AUDIO DATA	
	441	442 ...	443	
	AUDIO 12	HEADER INFO	AUDIO DATA	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2004/000832

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC7 H04B 1/40**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04B 1/40

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Korean Patents and applications for inventions since 1975, Korean Utility models and applications for Utility models since 1975  
Japanese Patents and applications for inventions since 1975, Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 2001-0095607 A (SHINJI SOFT CORP.) 7 NOV 2001, see whole document	1
A	KR 2003-0008522 A (LG TELECOM CO.,LTD.) 19 JAN 2003, see abstract	2-20
A	KR 2001-0036830 A (KT FREETEL CO.,LTD) 7 MAY 2001, see abstract	2-20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

28 JUNE 2004 (28.06.2004)

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Name and mailing address of the ISA/KR



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